



DATUM Gateway + Bitcoin Knots Setup Guide with AWS EC2 Instance

Operation Bitcoin — Full Deployment, Configuration, and Monitoring Guide

operationbitcoin.io

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1) Recommended AWS EC2 Configuration Summary

Instance Type (recommended for 10k+ miners)

- m7a.2xlarge (8 vCPU, 32 GB RAM)
- Network performance: Up to 12.5 Gbps (ideal for high connection counts)
- OS Image: Ubuntu 24.04 LTS (64-bit, amd64)

EBS Volume (blockchain + data storage)

- Type: gp3 SSD (faster and cheaper than gp2)
- Size: 1 TB minimum (full chain) or 600 GB (pruned)
- IOPS: 3000 (default) - can raise if heavy load
- Mount path: /mnt/bitcoin

Security Group Rules (firewall)

Inbound Rules:

- TCP 22 → My IP only # SSH admin access
- TCP 23334 → 0.0.0.0/0 # Stratum miners connect here
- TCP 8333 → 0.0.0.0/0 # Optional: Bitcoin P2P

Outbound Rules:

- All traffic → 0.0.0.0/0 (default)

Networking

- Elastic IP: Allocate and associate with instance for static public IP
- DNS: Point datum.operationbitcoin.io → Elastic IP (A record)

2) Create and Store a PEM Key (Private SSH Key)

```
# Create an .ssh directory if it doesn't exist
```

```
mkdir -p ~/.ssh
```

```
cd ~/.ssh
```

```
# Generate a new SSH key pair for AWS access
```

```
ssh-keygen -t rsa -b 4096 -m PEM -f ~/.ssh/OBTelehash.pem -C "your_email@example.com"
```

```
# Restrict file permissions for security
```

```
chmod 600 ~/.ssh/OBTelehash.pem
```

```
# (Optional) Import the public key into AWS → EC2 → Key Pairs → Import key pair
```

```
# Connect to your instance using the private key
```

```
ssh -i ~/.ssh/OBTelehash.pem ubuntu@<PUBLIC_IP_OR_ELASTIC_IP>
```

3) Connect to Your EC2 Instance and Update System

```
# Connect to your instance
```

```
ssh -i ~/.ssh/OBTelehash.pem ubuntu@<PUBLIC_IP_OR_ELASTIC_IP>
```

```
# Update system packages and install required tools
```

```
sudo apt update && sudo apt -y upgrade
sudo apt -y install ufw jq curl git htop net-tools unzip vim psmisc
```

```
# Configure firewall and open Stratum + SSH ports
sudo ufw allow 22/tcp
sudo ufw allow 23334/tcp
sudo ufw --force enable
```

4) Attach and Mount the EBS Volume

```
# Format the EBS device (replace with your actual device name)
sudo mkfs.ext4 <EBS_DEVICE> # Example: /dev/nvme1n1

# Mount the blockchain data directory
sudo mkdir -p /mnt/bitcoin
sudo mount <EBS_DEVICE> /mnt/bitcoin

# Retrieve UUID and add to /etc/fstab for persistent mounting
sudo blkid <EBS_DEVICE>
echo 'UUID=<UUID> /mnt/bitcoin ext4 defaults,nofail 0 2' | sudo tee -a /etc/fstab

# Reload mounts and verify
sudo systemctl daemon-reload
sudo mount -a
df -h /mnt/bitcoin
```

5) Configure Bitcoin Knots

```
# Edit Bitcoin configuration file
sudo nano /mnt/bitcoin/.bitcoin/bitcoin.conf
```

```
# Configuration file example
server=1
daemon=0
txindex=1
rpcuser=datumrpc
rpcpassword=<RPC_PASSWORD_FROM_KNOTS>
rpcallowip=127.0.0.1
blockmaxweight=3985000
blockmaxsize=3985000
blocknotify=killall -USR1 datum_gateway
prune=0
```

6) Configure DATUM Gateway

```
# Edit DATUM Gateway configuration
sudo nano /etc/datum-gateway/config.json

# Configuration file example
{
  "bitcoind": {
    "rpcuser": "datumrpc",
    "rpcpassword": "<RPC_PASSWORD_FROM_KNOTS>",
    "rpcurl": "http://datumrpc:<RPC_PASSWORD_FROM_KNOTS>@127.0.0.1:8332",
    "work_update_seconds": 40,
    "notify_fallback": false
  },
  "stratum": {
    "listen_addr": "0.0.0.0",
    "listen_port": 23334,
    "max_clients_per_thread": 1024,
    "max_threads": 16,
    "max_clients": 16000,
    "vardiff_min": 16384,
    "vardiff_target_shares_min": 12,
    "vardiff_quickdiff_count": 8,
    "vardiff_quickdiff_delta": 8,
    "share_stale_seconds": 120,
    "fingerprint_miners": true,
    "idle_timeout_no_subscribe": 15,
    "idle_timeout_no_shares": 7200,
    "idle_timeout_max_last_work": 0,
    "username_modifiers": {}
  },
  "mining": {
    "pool_address": "<POOL_PAYOUT_ADDRESS_bc1...>",
    "coinbase_tag_primary": "Operation Bitcoin",
    "coinbase_tag_secondary": "Get On The Mission",
    "coinbase_unique_id": 4242,
    "save_submitblocks_dir": ""
  },
  "api": {
    "admin_password": "<API_PASSWORD>",
    "listen_addr": "127.0.0.1",
    "listen_port": 7152,
    "modify_conf": false
  },
  "datum": {
    "pool_host": "datum-beta1.mine.ocean.xyz",
    "pool_port": 28915,
    "pool_pass_workers": true,
    "pool_pass_full_users": false,
    "always_pay_self": true,
    "pooled_mining_only": true,
    "protocol_global_timeout": 60
  }
}
```

7) Validation and Monitoring

```
# Validate and restart services
jq . /etc/datum-gateway/config.json
sudo systemctl daemon-reload
sudo systemctl restart bitcoind
sudo systemctl restart datum-gateway
sudo systemctl status datum-gateway --no-pager

# Monitor miners and connections
watch -n2 'ss -Htan state established sport = :23334 | wc -l'
sudo journalctl -fu datum-gateway
sudo ss -tanp | grep 23334

# Check RPC link
curl -sf --user datumrpc:<RPC_PASSWORD_FROM_KNOTS> -H 'content-type:text/plain;' --data-binary '{"js
```

Appendix — Placeholder Reference

```
<PUBLIC_IP_OR_ELASTIC_IP> – Public IPv4 from AWS EC2 console.
<EBS_DEVICE> – Attached EBS device (e.g., /dev/nvme1n1).
<UUID> – Filesystem UUID (get with sudo blkid <EBS_DEVICE>).
<RPC_PASSWORD_FROM_KNOTS> – The RPC password in /mnt/bitcoin/.bitcoin/bitcoin.conf.
<POOL_PAYOUT_ADDRESS_bc1...> – Your BTC payout address.
<API_PASSWORD> – Admin password for DATUM Gateway API.
<DATUM_DOMAIN_OR_ELASTIC_IP> – The hostname or Elastic IP for miners to connect.
<STRATUM_PORT> – Default: 23334.
```